wise. For it is not possible that any animal should be able to ascertain the direction of a source of smell, unless the animal, being freely locomotive, is able, by moving about, to perceive the differential intensity of the olfactory sensation as it approaches or recedes from such a body. But a Sea-anemone, being stationary, has no opportunity of thus distinguishing the direction from which the odour is proceeding; it can only be affected by the odour as this occurs pretty equally diffused around its own organism.

Note on a new Ciliate Infusorian allied to *Pleuronema*.

By Frederick W. Phillips, F.L.S.

[Read June 15, 1882.]

Calyptotricha *, n. gen.

Animalcules *loricate, sedentary*, more or less ovate or pyriform, clothed with flexible, non-vibratile, setose ciliæ. Oral aperture ventral. A vibratory membranous hood or velum. Contractile vesicles and nucleus present, and trichocysts in cortical layer.

Calyptotricha pleuronemoides †, n. sp.

The adult form provided with an elongo-ovate, transparent, hyaline lorica, opening teat-like at both ends. Body-cilia about two thirds the body in length, with shorter, stronger vibratile cilia at entrance of velum; the velum almost equal to the ventral length. Nucleus centrally situate, and two rhythmically contractile vesicles present. Anterior extremity of body protrusible from lorica. Length ·001 inch.

Hab. Pond-water.

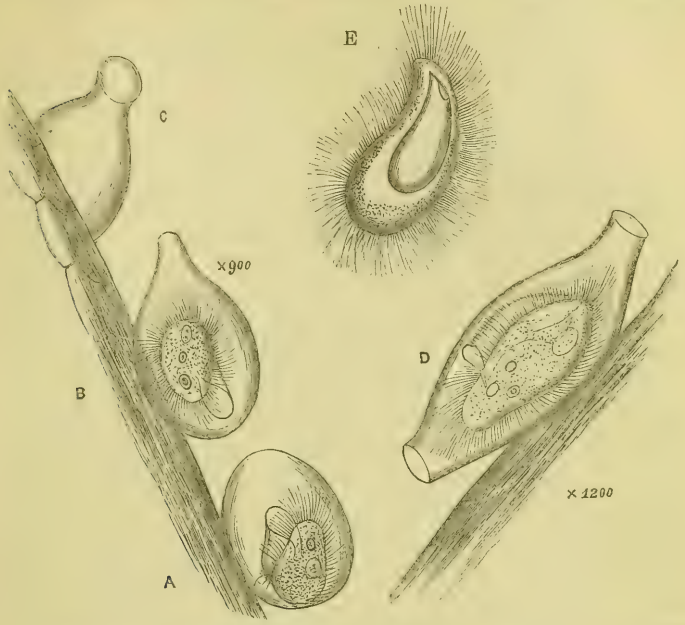
The above-named animalcule, which is now described for the first time, was found attached to *Myriophyllum*, obtained from a pond near Hertford. At first sight I thought it was an embryonic or encysted stage of some monad; but upon applying a magnifying-power of some 900 diameters, I observed that it possessed a singular vibratile membrane, closely resembling that which characterizes the members of the family Pleuronemidæ.

I observed that the animalcule was of an ovate form, the body being clothed with numerous long, flexible, but non-vibratile cilia, of a setose character; that the membranous trap, or *velum*, which in form resembled the old-fashioned poke-bonnet, con-

* καλυπτός, veiled or covered; θρίξ, hair.

† Trivial name in allusion to its resemblance to the genus *Pleuronema*.

stantly vibrated backwards and forwards; that the movements of the animalcule consisted of rapid and continuous revolutions



Calyptotricha pleuronemoides, nob., in different stages of development. A. First stage. B. The same, further developed. C. End view of lorica. D. The perfect animal, like the others adherent to the leaf of *Myriophyllum*. E. Diagrammatic sketch of a momentary view obtained of the ventral surface in the act of protrusion; the velum is drawn backwards.

Drawn from nature and all highly magnified.

on its longitudinal axis; also that it was enclosed in an oval, imperforate, hyaline cyst or lorica. This first observation was made on March 16th.

On March 23rd I discovered that the lorica had increased in size, and that one end was elongated into a teat-like form; the contained animalcule had also increased in size, and a slight depression was visible on the ventral side at the entrance to the velum. At this stage, by an accident, the slide on which the animal was living became dried up, and I was unable to follow its further development.

On March 28th I found several other specimens, one of which had developed a most remarkable lorica, open at both ends, and of a symmetrical form. The enclosed animalcule was of a larger size than those previously examined. The body was somewhat

pyriform; the velum was greatly elongated, extending almost the entire length of the ventral surface; in width it had not increased proportionately.

The body-cilia were about two thirds of the diameter of the body in length; several shorter, powerful, vibratile cilia were stationed along the entrance of the velum; two rhythmically contractile vesicles were present, also a nucleus centrally situate. Owing to the great activity of the animalcule, I could not make out the oral aperture satisfactorily. I endeavoured to feed it with carmine, but was unsuccessful, because of its awkward situation in the fork of the weed; but occasionally particles of matter passed over the outermost aperture of the lorica, which were rapidly swept within. The hyaline membrane vibrated continually as before; and I am inclined to think it is an active agent in procuring food. Trichocysts were developed in the cortical layer.

Its movements were much the same as before, except that they were more vigorous; and occasionally the anterior extremity would be protruded from the lorica; it would also occasionally reverse its position in the lorica.

The nearest ally of the present species appears to be found in the typical genus *Pleuronema*, of the family Pleuronemidæ, which is defined in Mr. Saville Kent's 'Manual of the Infusoria,' vol. ii. p. 542 (pt. 4, 1881), but from all specific forms of which it differs in the possession of a membranous lorica.

In his description of the family and genus (*op. cit.*), the animalcules are described as essentially free-swimming. But I have no reason to believe that the present species ever quits its habitation to assume the habitual free-swimming character of all the Pleuronemidæ previously recorded, nor have I ever seen an empty lorica. I am further of opinion that this sedentary stage is the mature condition.

Mr. Kent remarks of *Pleuronema* (*l. c.* p. 543) that the trap may be compared to the extensile hood of a carriage, or an outside window-shade, and, when not in use, is packed in neat folds round the animalcule's mouth. I may mention, however, that I have never observed any retraction of the hood-like process in *Calyptotricha*.

This peculiarity, its sedentary habit, and the presence of a lorica sufficiently, therefore, distinguish it from the genus compared.

I am indebted to Mr. Kent for kindly looking over my notes, and suggesting the generic and specific names here given.